REMARKS

Applicant respectfully requests entry of the above amendments. Applicant submits that no new matter has been added. Applicant respectfully submits that the application is in condition for substantive examination, and such examination is respectfully requested.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

The specification has been amended as follows.

The second paragraph on Page 1, beginning on Line 8, has been amended as follows.

In this specification, the method and circuit described will be related to rear view mirrors for motor vehicles of the type in which the orientation of the mirror glass is adjustable relative to the mirror housing by [means] way of two screw jack drives arranged to adjust the orientation of the mirror glass about mutually orthogonal axes.

The first paragraph on Page 3, beginning on Line 2, has been amended as follows.

In a broad aspect of the invention, a position sensing and control apparatus comprises a first supply voltage [means] source supplying a first supply voltage; a sensor powered by said supply voltage and operatively connected to a first member moveable relative to a second member to produce a voltage representative of the position of said first member relative to said second member; a voltage to current converter having a reference voltage supply for converting the voltage output of said sensor to a current wherein said first supply voltage has a ratiometric relationship with said reference voltage.

The second paragraph on Page 3, beginning on Line 10, has been amended as follows.

In a further aspect of the invention, the position sensing and control apparatus further comprises storage [means] memory for storing values of said current representative

of a state of a respective sensor; a control circuit for controlling the movement of said first member, arranged to move said first member until said voltage to current converter output is substantially the same as a said stored value of current.

Claims 1, 2, 4, 5, 7 and 8 have been amended as follows.

Claim 1. (Amended) A position sensing and control apparatus comprising:

a first supply voltage [means] source supplying a first supply voltage;

a sensor powered by said supply voltage and operatively connected to a first member moveable relative to a second member to produce a voltage representative of the position of said first member relative to said second member; and

a voltage to current converter having a reference voltage supply for converting the voltage output of said sensor to a current wherein said first supply voltage has a ratiometric relationship with said reference voltage.

Claim 2. (Amended) A position sensing and control apparatus according to claim 1 further comprising:

a storage [means] memory for storing values of said current representative of a state of a respective sensor; and

a control circuit for controlling the movement of said first member, arranged to move said first member until said voltage to current converter output is substantially the same as a said stored value of current.

Claim 4. (Amended) A position sensing and control apparatus according to claim 3 wherein said voltage detector further comprises a switch interposed between said control circuit and said first supply voltage [means] source used to isolate said control circuit and said supply voltage [means] source when said first supply voltage is smaller or greater than predetermined voltages.

Claim 5. (Amended) A position sensing and control apparatus according to claim 4 wherein said switch comprises a transistor, the base of which is connected to and controlled by an output voltage of said voltage detector [means].

Claim 7. (Amended) A position sensing and control apparatus according to claim 1 wherein said voltage to current [means] converter comprises an operational amplifier having a positive and negative input for receiving a voltage output from said sensor at said positive input and an output of said operational amplifier being high when said positive input is greater [that] than said negative input, the output of said operational amplifier being input to the base of an emitter follow transistor, the [of] emitter of which is connected to a resistive [means] circuit to ground and above which a voltage [feed back] feedback circuit to said negative input of said operational amplifier is provide, wherein as said feedback voltage reaches the value of said input voltage to said positive input, the output voltage of said operational amplifier decreases until said positive and negative voltage inputs are the same the result of which there is, as a result of the ratiometric relationship between the reference between said first supply voltage of said sensor and said reference voltage

supply of said voltage to current [means] converter, the current through said resistance [means] circuit is representative of said sensor position.

Claim 8. (Amended) A position sensing and control apparatus according to claim 7 wherein the collector current of said emitter follow transistor is substantially the same as said current through said resistance [means] circuit.

The Abstract has been added as follows.

ABSTRACT

Position sensing and control of the displacement of a first member relative to a second member particularly in a vehicular environment is aided by having a ratiometric relationship between the voltage supply for the sensor and the measuring/control portion of the apparatus. In an embodiment, the relative position of a rear view mirror to its housing is controlled. To facilitate the return of a mirror to a preferred position, the conversion of sensor voltage output to a current and the storage of the current of one or more preferred positions allows for the repeatable setting of the rear view mirror. Over and under voltage protection of the sensor supply voltage provides for consistent measurement and control characteristics.